

I. Amendments

A. Specification

The specification has been amended to include subject matter from U.S. Patent Nos. 5,274,240 (the '240 patent) and 4,188,218 (the '218 patent), which are cited in the present specification at column 4, line 51, and incorporated by reference at column 10, lines 61-64. Support can be found in the patents incorporated by reference into the present specification. For example, the paragraph inserted at column 4, after line 65, is supported by, for example, the '240 patent at column 4, line 28, to column 5, line 44 and the '218 patent at column 5, lines 18-29. No new matter has been added.

B. Drawings

The Drawings have been amended to add new Figures 9 and 10. New Figures 9 and 10 correspond to Figures 1 and 2 of the '240 patent, with the following modifications. Reference number 31 has been added to new Figure 9 to identify the stepper motor connected to translation stage 30 and the stage controller. Reference number 32 has been added to Figure 10 to identify a scan window. Support can be found by Figures 1 and 2 of the '240 patent and column 5, lines 18-29 of the '281 patent, both of which are incorporated by reference at column 10, lines 61-64 of the present specification.

C. Claims

Claims 1, 3, 4, 16, 17, 23, 25, 31, 45, and 52 have been amended without narrowing their scope in any way. For example, claims 1, 3, 4, 16, 17, 23, and 31 have been amended for various antecedent basis issues, which were noted by the Office, and claims 45 and 52 have been amended to consistently refer to the "velocity-normalized integrated signal." No new matter has been added.

Claims 1-65 are pending and under consideration.

II. Drawings

The Office objected to the drawings for allegedly failing to show every feature of the invention specified in the claims. (Office Action, page 2.) In particular, the Office stated that "the scanner, the integrating detector, the computer, the stepper motor, [and] the scan window of claims 17-20, 54-59 must be shown or the feature(s) canceled from the claims." (*Id.*)

Applicant respectfully submits that the objection is moot in view of the Figures 9 and 10, added with the present Amendment. Those figures illustrate, among other things, a scanner, which can comprise a stepper motor 31, an integrating detector, shown as cooled photomultiplier tube 18, a computer, and a scan window 32.

Reconsideration and withdrawal of the objection are respectfully requested.

III. Claim Objections

The Office objected to claims 1, 3, 4, 17, 23, and 31 for various informalities. (Office Action, page 2.) Those objections are moot in view of above amendments.

IV. Rejections Under 35 U.S.C. § 112

The Office rejected claims 16, 25, 27, 47, and 51 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. (Office Action, page 3.) The specific rejections are addressed below.

The Office contended that claim 16 is unclear in view of the language "one or more." *Id.* Solely to expedite prosecution, claim 16 has been amended replacing the language "one more" with the language "the plurality of."

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The Office also rejected claim 25, stating that the stepper motor in claim 25 lacks proper antecedent basis. Claim 25 has been amended to change the word "a" to the word "the".

Thus, the § 112, second paragraph, rejections of claims 16 and 25 are moot.

The Office contented that claims 27, 47, and 51 are unclear because "an integrated detector is already claimed in parent claim 26." (Office Action, page 3.) Applicant traverses the rejection. Although claim 26 recites "means for detecting an integrated signal (S) across a scan window comprising one or more channels using an integrating detector" (emphasis added), claim 26 does not recite that the apparatus comprises an integrating detector. Accordingly, an integrated detector is not a claimed element of claim 26. Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 27, 47, and 51 under § 112, second paragraph.

V. Rejections Under 35 U.S.C. § 102

The Office rejected claims 1, 5, 10, 14-17, 19, 21, 26, and 27 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,072,382 to Kamentsky ("Kamentsky"). (Office Action, pages 3 to 4.) Applicant respectfully traverses the rejection for at least the following reasons.

First, although Kamentsky has been cited for and does use the phrase "velocity normalization," the normalization disclosed by Kamentsky is not a function of scan velocity. Instead, the velocity calibration factor is the trigonometric function $\cos(\Delta x)$, where Δx is the distance of the point from the center of the scan length. (Kamentsky, column 12, lines 20-25.) Thus, Kamentsky does not teach or suggest "calculating a velocity-normalized integrated signal (S_n) as a function of a scan velocity..." as set

forth in independent claims 1, 16, 21, and 26. Likewise, since Kamentsky relies upon a predetermined trigonometric factor for calibration, Kamentsky does not teach or suggest "computer means for... determining a scan velocity," as set forth in claims 16, 26, and 27. Therefore, since Kamentsky fails to teach "[t]he identical invention... in as complete detail as is contained in the... claim," Kamentsky fails to anticipate the presently claimed invention. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

Second, the "scan strips" of Kamentsky figure 4 and column 10, lines 40-55, have been cited by the Office as the channels of the presently claimed invention in claims 1, 5, 10, 14-17, 19, 21, 26, and 27. However, Kamentsky's "scan strips" are essentially one dimensional x-axis scans of a two dimensional surface scan. The procedure of Kamentsky involves measuring a series of points along each scan strip in order to generate, in a point-by-point fashion, a map of the surface being studied. The signals from along a scan strip are not summed together and the signal from each point is maintained as a separate data point.

In contrast, channels according to claims 1, 5, 10, 14-17, 19, 21, 26, and 27 are a region over which an integrating detector collects an integrated signal. (See, e.g., column 3, lines 7-10.) Thus, the integrated signal is based on the signal collected from, for example, an entire region. Accordingly, Kamentsky's "scan strips," which are composed of a series of independent data points, do not show the channels according to claims 1, 5, 10, 14-17, 19, 21, 26, and 27. Hence, for this additional reason, Kamentsky fails to anticipate the rejected claims.

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Applicant respectfully requests reconsideration and withdrawal of the rejection under section 102 over Kamentsky.

VI. Rejections Under 35 U.S.C. § 103

A. Kamentsky

The Office rejected claims 6-9, 11-13, 18, and 20 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kamentsky. (Office Action, pages 5 to 6.) Applicant respectfully disagrees with and traverses the rejection for at least the reasons discussed above with respect to the rejection under section 102 over Kamentsky and the additional reasons discussed below.

First, according to the Office, "Kamentsky does not specifically disclose an electrophoresis system as claimed. However... [i]t would have been obvious... to provide the claimed electrophoresis system in the apparatus and method of Kamentsky to provide better detection for such systems." (*Id.*) However, the proposal conflicts with inherent limitations of the Kamentsky apparatus and method, which are directed to the study of whole cells.

For example, the Kamentsky apparatus and method are based around a standard epi-illumination microscope (figure 1; column 6, lines 38-43), and are directed to characterizing a population of cells (column 1, lines 7-10). According to Kamentsky, the substrate being probed must be capable of supporting cells deposited thereon. (Column 5, lines 60-64.) Kamentsky only studies DNA or RNA as constituents within whole cells. (See, e.g., Kamentsky, column 2, lines 27-30 ("The invention is capable of determining the amount of a specific constituent in a cell or cell population...")) (emphasis added); see *also* Kamentsky, column 7, lines 24-30.) Since electrophoresis

systems separate soluble material under the influence of an applied electric field (see, e.g., U.S. Patent No. 5,543,026 to Hoff *et al.*, column 1, lines 14-30), an electrophoresis system would not be compatible with the study of whole cells, particularly on an exposed surface, as required by Kamentsky (Kamentsky, column 1, lines 6-11, 54-58).

Thus, there is no basis in the disclosure of Kamentsky from which one could expect that an electrophoresis system or slab gel would be compatible with this microscope based system. In other words, there is no reasonable expectation of success, as required to establish a prima facie case of obviousness. MPEP § 2143.02. Further, the modification proposes to change the principle of operation of the Kamentsky from the study whole cells to the study of soluble material. However, a prima facie case of obviousness is not be established by a proposal that changes a reference's principle of operation. See M.P.E.P. § 2143. 01.

Second, with respect to claims 11 and 12, the Office acknowledges that "Kamentsky does not specifically disclose measuring a channel width or a home position sensor." (Office Action, page 6.) Nevertheless, the Office argues that those elements are inherent or well known, and therefore that the claimed subject matter as a whole would have been obvious. (*Id.*) Applicant respectfully disagrees.

In particular, as noted above, the characterization of Kamentsky's "scan strips" as being the same as the channels according to the presently claimed invention (Office Action, page 3), is erroneous. However, even if these "scan strips" are channels, the "scan strips" are scanned with a mirror scanner (figure 1, element 14), such as a galvanometer scanner (column 6, lines 39-40). This mirror scanner effectively defines the width of the "scan strip." The stepper motor referenced by the Office (Office Action,

page 4) is used to translate the sample perpendicular to the "scan strips" (column 10, lines 49-51) and does not define a width of the "scan strips." Thus, contrary to the Office's assertion, using a stepper motor to define a channel width is not inherent in Kamentsky.

Further, the use of a mirror scanner as opposed to a stepper motor to scan the "scan strips" appears to be an important feature of Kamentsky based on their stated goal of a high point-by-point sampling rate. (Column 3, lines 1-6.) Thus, using a stepper motor might be inconsistent with Kamentsky's stated goal of high sampling rate for the point-by-point surface analysis. Accordingly, using a stepper motor to define a channel width would not have been obvious from Kamentsky.

For these additional reasons, *i.e.*, the failure of the references to teach or suggest all the claimed elements, a prima facie case of obviousness has not been established against claims 11 and 12. Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection in view of Kamentsky.

B. Kamentsky in view of U.S. Patent No. 3,952,854 to Lichstein.

The Office rejected Claims 2, 3, 22, and 23 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kamentsky in view of U.S. Patent No. 3,952,854 to Lichstein ("Lichstein"). According to the Office, Kamentsky discloses multiplying the scan velocity by the integrated signal and Lichstein discloses that normalization may be performed by either multiplication or division. (Office Action, page 7.) Applicant respectfully traverses the rejection based on at least the deficiencies note above for Kamentsky and for the following additional reasons.

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First, Lichstein is non-analogous art and, therefore, cannot be combined as proposed by the Office or used together against the presently claimed invention. MPEP § 2141.01(a). For instance, claims 1 and 21 (the parents of the claims rejected over Kamentsky in view of Lichstein) are directed to a method and a program storage device, respectively, to scan a scan window comprising one or more channels. In contrast, Lichstein is directed to measuring the absorbency characteristics of absorbent structures (Lichstein, abstract), such as textiles, foams, and gels (Lichstein, column 3, lines 56-58). Thus, Lichstein is not in the same field of endeavor as the presently claimed invention.

Further, given that the problem addressed by Lichstein is the simultaneous measure of a rate of liquid transport and liquid holding capacity (Lichstein, column 1, lines 43-46), Lichstein is not reasonably pertinent to the particular problem addressed by the presently claimed invention, which includes "calculating a velocity-normalized integrated signal (S_n) as a function of scan velocity and the integrated signal S ." (Claims 1, 21.)

Accordingly, since Lichstein is non-analogous art, it cannot be relied upon, and the combination of Kamentsky and Lichstein fails to support a prima facie case of obviousness. MPEP § 2141.01(a).

Second, although the Office cites Kamentsky for "multiplying the scan velocity with the integrated signal" (Office Action, page 7), at most Kamentsky discloses using a "velocity normalization factor." As noted above, the "velocity normalization factor" is not based in any way on the true velocity of the scan but, rather, the trigonometric function $\cos(\Delta x)$, where Δx is the distance of the point from the center of the scan length.

(Kamentsky, column 12, lines 20-25.) Accordingly, even if the normalization procedures of Lichstein could be relied upon, Kamentsky does not disclose using a scan velocity to normalize any signal.

Accordingly, the combination of Lichstein and Kamentsky fails to support a prima facie case of obviousness because, *inter alia*, they fail to teach or suggest "calculating a velocity-normalized integrated signal (S_n) as a function of a scan velocity and the integrated signal S ," as set forth in, for example, claims 1 and 21 (the parents to the claims rejected over Kamentsky in view of Lichstein). Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection over Kamentsky and Lichstein.

C. Kamentsky in view of U.S. Patent No. 4,520,504 to Walker et al.

Claims 4, 24, and 25 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kamentsky in view of U.S. Patent No. 4,520,504 to Walker et al ("Walker"). Applicant respectfully disagrees with and traverses the rejection based on at least the deficiencies noted above for Kamentsky and for the following additional reason.

Walker relates to a system which generates computerized display images of infrared scenes, such as the flow of heat out of structures and piping (Walker, column 1, lines 12-16). Therefore, as is the case with Lichstein, Walker is non-analogous because it relates to a different field of endeavor and is not reasonably pertinent to the particular problem addressed by the presently claimed invention. MPEP § 2141.01

Accordingly, since Walker is non-analogous art it cannot be relied upon, and the combination of Kamentsky and Walker fails to support a prima facie case of

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obviousness. Applicant respectfully requests reconsideration of the § 103 rejection over Kamentsky and Walker.

VII. Reissue Applications

Applicant acknowledges that the original patent, or a statement as to its loss or inaccessibility, must be received before the reissue application can be allowed.

CONCLUSION

Applicant respectfully submits that the present reissue application is in condition for allowance with claims 1-65.

The Examiner is invited to contact Applicant's undersigned representative by telephone at (202) 408-4092 to resolve any additional matters that may remain.

Please grant any extensions of time required to enter this Amendment and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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